

USER GUIDE



Product Code 27-40I

Canford Audio Plc
Crowther Road
Washington
Tyne and Wear
NE38 0BW

canford.co.uk

Section 1.0 Introduction

Section 2.0 Basic Operation

- 2.1 Keypad
- 2.2 Turning On and Off
- 2.3 Locking and Unlocking The Keypad
- 2.4 Display Illumination
- 2.5 Screen Information
- 2.6 First Time Switch On
- 2.7 CE and Non-CE Channels
- 2.8 Setting the Radio Channel for a Conference Group
- 2.9 Setting a Conference Group
- 2.10 Assigning an Identifier Number
- 2.11 Enabling a Conference
- 2.12 Using the Listener Only Mode
- 2.13 Headset Volume

Section 3.0 Operational Features

- 3.1 Setting the Side Tone Level
- 3.2 Setting the Push To Talk (PTT) Mode
- 3.3 Using PTT Mode
- 3.4 Quick Channel Setting - 'Fast Channel'
- 3.5 Using Fast Channel Mode
- 3.6 Quick Volume Setting - 'Fast Volume'
- 3.7 Using Fast Volume Mode
- 3.8 Group Selection
- 3.9 Example of Group Setting

Section 4.0 Advanced Settings

- 4.1 Using Advanced Settings
- 4.2 Filter Type
- 4.3 User Menu Locked Feature
- 4.4 Disabling The Encryption Setting
- 4.5 Microphone Gain Settings
- 4.6 AEC Filter

Section 5.0 Headsets

- 5.1 Tecpro SMH214
- 5.2 Tecpro DMH224

Section 6.0 Batteries and Charger

- 6.1 Batteries
- 6.2 Charger
- 6.3 Battery Charger Operation
- 6.4 LED Indicators
- 6.5 Battery Charger Specification

Section 7.0 Troubleshooting

- 7.1 Cannot communicate with other Belt-Packs
- 7.2 The Belt-Pack cannot enter a Conference
- 7.3 The Belt-Pack will not switch on
- 7.4 Communication Inteference
- 7.5 Crackling Noises
- 7.6 Echo Sounds
- 7.7 The keys are not working properly

Section 8.0 Accessories

Section 8.0 Technical Specifications

- 9.1 27-401 TW401 Wireless Belt-Pack
- 9.2 27-214 SMH214 Single Muff Closed Headset
- 9.3 27-224 DMH224 Dual Muff Closed Headset

1.0 INTRODUCTION

The Tecpro TW40I MkII wireless belt-pack system can be used to establish a full duplex wireless conference group of up to 6 personnel. The group can simultaneously talk and listen to all the other users within the same group. In addition, an un-limited number of listener only belt-packs can be added to the system, useful for personnel who only need to monitor conversation within the group.

The system operates primarily on an EU licence exempt UHF frequency of 869.525 MHz with two alternative EU licence exempt frequencies provided within the 863 – 865 MHz band. Encrypted digital transmission technology is used for secure communication. Additional non EU frequencies are available for use in many countries worldwide. Approximate operational coverage is 300 - 400m depending on the environment and the frequency selected. Please see the full specifications in Section 9.0

Major applications are in the theatre, conference, live performance and broadcast markets, though new applications are constantly emerging.

Please note that the latest Mk II versions are not backwards compatible with the previous Mk I versions – because a different coding system is used.

2.0 BASIC OPERATION

There are 5 front panel keys that enable the selection and viewing of the various menu functions and their options. Please see Figure 1 below



Keys	Description
Start/Stop 	Power ON/OFF
Menu 	The menu key allows access to the configuration menu of the belt-pack. Also allows direct access to group selection.
+/-	Allows direct access to volume control or channel selection. In the setup menu of the belt-pack these keys adjust various parameters.
OK	Allows locking / unlocking of the keypad. In the setup menu of the belt-pack this button also allows you to accept the selected option, or exit the device configuration.
Tecpro	Allows opening / closing of the microphone when “Push-To-Mute” is enabled.

Figure 1 - Key Functions


2.1 Keypad

The wireless belt-pack keypad is a touch sensitive type.

2.2 Turning On and Off


Insert a charged battery into the rear compartment on the wireless belt-pack.

Ensure the battery is inserted correctly.

To turn the belt-pack on, press and hold the  ON/OFF key for 2 seconds.

To turn the belt-pack off, press and hold the  ON/OFF key for 2 seconds.

2.3 Locking and Unlocking the Keypad

Press and hold the OK key for 2 seconds until the key symbol  appears on the screen.

The keypad buttons are now locked to prevent accidental operation (except the ON/OFF key operation as described in Section 2.2 and the - and + keys when the functions Fast Volume or Fast Channel are enabled, as described in Sections 3.4 and 3.6.

To unlock the keypad, press and hold the OK key for 2 seconds until the key symbol  disappears.

N.B. The keypad is automatically locked each time the belt-pack is switched on.

2.4 Display Illumination

If none of the keys are pressed the blue LCD display will dim after 1 minute to save battery power.

2.5 Screen Information

The screen displays the belt-pack status, battery level and various other settings.

Please see Figures 2 and 3 below.

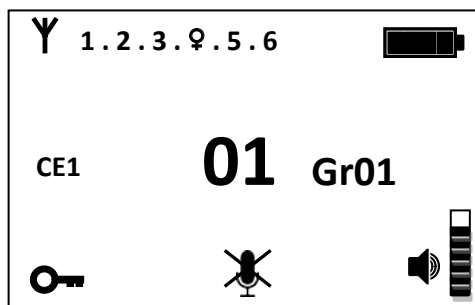


Figure 2 - The Main Screen Icons


Icon	Description
	<u>Belt-Pack Identifier Number</u> Indicates the belt-pack number in the conference group or if it is in listener mode.
	<u>System Status</u> The  icon indicates the location of the belt-pack in the conference group and the numbers indicate the other belt-packs in the same conference. A dash over the number indicates the particular belt-pack is in listener mode.
	<u>Radio Channel Number</u> Indicates the selected radio channel number.
	<u>Battery Level</u> Provides information on the battery level with 5 levels.
	<u>Volume Control</u> Indicates the headset volume level with 9 levels.
	<u>Group Mode</u> Indicates the parent group of the belt-pack.
	<u>Push To Talk Function</u> Indicates the microphone status - open or closed.
	<u>Keypad Locked / Unlocked</u> (N.B. The power ON/OFF function still operates).

Figure 3 - Screen Icon Information

2.6 First Time Switch On

When switching on for the first time, you must validate that you are authorised to use the channel you are going to use. Full details are in Section 2.7

Please see Figure 4 below.

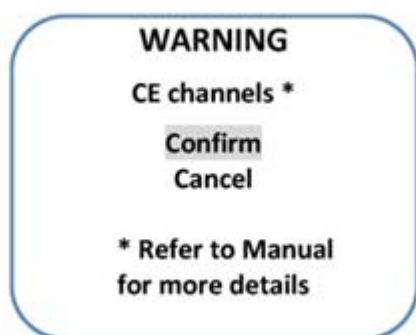


Figure 4 - Authorisation Screen

N.B. If a channel selection has already been carried out during a previous switch on, you simply confirm your choice. Select Confirm using the + or - keys, then press OK.

2.7 CE and Non-CE Channels

Up to 10 different channels are stored in the TW401 - they have been separated into two distinct groups:

CE channels Allowed in all countries of the European Community.

Non-CE channels Not authorised for use within the EU. These channels are intended for use in some countries outside the European Community.

N.B. It is the responsibility of the user to first determine which channel is allowed with the relevant authorities of the country where the system will be used – before switching to these channels.

CE channels:

CE 1	869.525 MHz	
CE 2	864.5 MHz	(power limited to 10 dBm)
CE 3	863.5 MHz	(power limited to 10 dBm)


Non-CE channels:

Russia	859.5 MHz	(frequency available for events only in Russia)
Ukraine	868.3 MHz	(frequency available for events only in Ukraine)
SE1	866.5 MHz	
SE2	864.5 MHz	
SE3	863.5 MHz	
SE4	861.5 MHz	
SE5	860.5 MHz	

2.8 Setting the Radio Channel for a Conference Group

To communicate, the belt-packs must be set to the same radio channel number. The primary channel is CE 1 - however alternative channels CE 2 and CE 3 are also available.

Procedure:

From the main screen, press and hold the Menu key  for 2 seconds to access the user menu. Use the + or - keys to access the sub-menu 'Channel'.

Press OK to confirm.

In the Channel sub-menu, select the appropriate group (CE or Non-CE) by using the + or - keys.

Please see Figure 5.

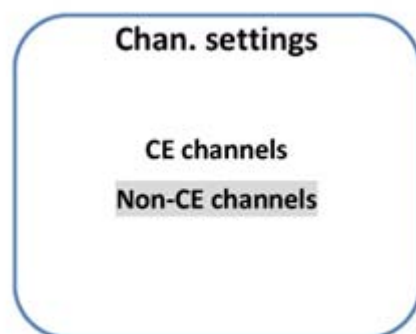


Figure 5 - Channel Group Selection

Press OK then confirm your choice by pressing OK again (or select Cancel by using the + or - keys to choose another group).

Select the channel by using the + or - keys. Please see Figure 6.

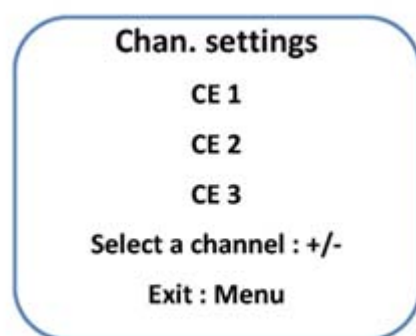



Figure 6 - Channel Group Selection

Press OK to confirm.

Press  to return to the main screen.

2.9 Setting a Conference Group

To set up a conference group, each belt-pack needs to be configured as follows:

- (i) Assign an identifier number to each belt-pack that will take part in the conference.
- (ii) Enable the belt-packs to enter the conference.

N.B. Once these parameters are stored in the memory, they will remain the same, even if the belt-pack is switched off or the battery removed.

2.10 Assigning an Identifier Number

To set up a conference group first decide the number of belt-packs that will take part in + the conference and assign a unique number to each of them. There may be between 2 to 6 belt-packs in a conference group, with identifier numbers 01 to 06. Make sure each device has a unique identifier – don't assign several devices with the same identifier as this will prevent communication.

N.B. One of the belt-packs must be set with identifier number 01. Please see figure 7.

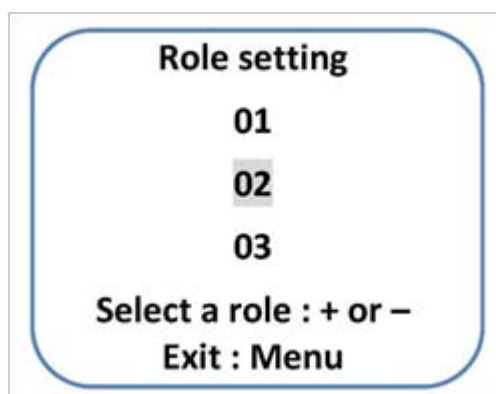



Figure 7 - Role Setting Screen

Procedure:


From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub-menu 'Role Setting'.

Press OK to confirm.

Press the + or - keys to select the required belt-pack ID.

Press OK to confirm.


Press  to return to the main screen.

2.11 Enabling a Conference

To enable a conference group of belt-packs, they must communicate and memorise an encryption key transmitted by belt-pack 01. This operation is necessary to enable all the belt-packs to enter a conference or to add an additional belt-pack to a conference that has already been setup.

N.B. The devices can only communicate if this procedure, known as the 'encryption process', is performed. First make sure all belt-packs have a unique identifier number and that one has the identifier 01.

Procedure:

From the main screen on belt-pack 01 press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub-menu 'Network'.

Press OK to confirm.

Press the + or - keys until the sub-menu 'Start' appears. Please see Figures 8 and 9.

Press OK to confirm.

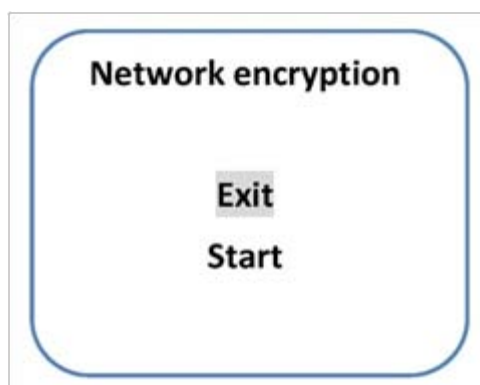


Figure 8 - Network Encryption



Figure 9 - Network Encryption - in Progress

Belt-pack 01 is now transmitting an encryption key signal and displays the message 'Sending key.' Please wait until process has succeeded'.

Then, on all the other belt-packs in the conference group follow the same procedure and ***SUCCEEDED*** will appear on the other screens.

Then press OK to confirm on all the other belt-packs in the conference group.


Finally, when all the belt-packs have been enabled into the conference group, press OK on belt-pack 01 to end the procedure.

2.12 Using The Listener Only Mode.

A belt-pack can be used as a listener only. In the listener only mode the belt-pack can only hear other belt-packs in the conference but it cannot talk as well.

N.B. The listener only mode can only work if the belt-pack has been encrypted first and also if at least 2 belt-packs (01 and another) are in the conference first.

Procedure:


From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub-menu 'Role'.

Press OK to confirm.

Press the + or - keys to select 'listener' from the list.

Press OK to confirm.

Press  to return to the main screen.

2.13 Headset Volume

To set the headset volume make sure that you are on the main screen and the keyboard is un-locked, then press and hold the + or - key for 2 seconds. You will hear a 'beep' in the headset.

There are 9 possible levels indicated by the screen icon .

Press OK to confirm.


N.B. if there is a 'double beep' in the headset, it indicates the maximum or minimum level has been reached.

3.0 OPERATIONAL FEATURES

3.1 Setting the Side-Tone Level

Side-tone is the amount of mic. signal that is fed to the users own headset earphones to give confidence and aid clear speech. It can be set at a level that is comfortable for the individual user.

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the main menu.

Press the + or - keys to access the sub-menu 'Side Tone'.

Press OK to confirm.

Press the + or - keys to adjust the side-tone level up or down.

Please see Figure 10.

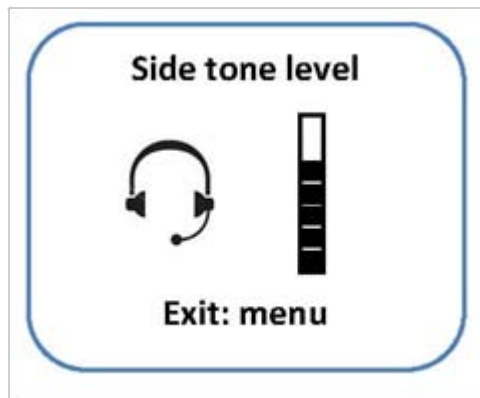



Figure 10 - Side-Tone Level Adjustment


Press OK to confirm.

Press  to return to the main screen

3.2 Setting the Push To talk (PTT) Mode

The belt-pack normally operates using hands free 'open mic communication'. However, it may be necessary, in some instances, to use the PTT mode - where the mic is normally muted and a switch is used to open the mic circuit to talk.

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub-menu 'Options'

Press the + or - keys to access the sub-menu 'PTT-Mute Mic'.

Press OK to confirm.

Press the + or - keys to select Activated.

Please see Figure 11.

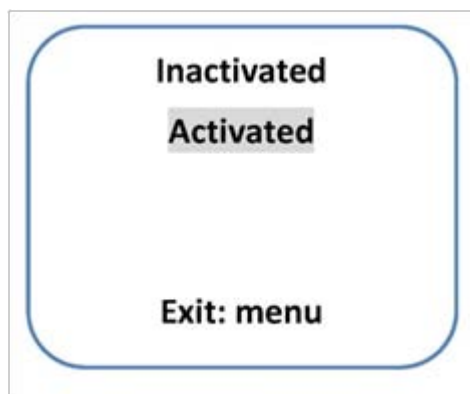




Figure 11 - PTT Adjustment

Press OK to confirm.

Press  to return to the main screen.

Once the PTT-Mute Mic mode is activated, the  icon appears in the home screen. i.e. the mic is normally muted.

3.3 Using (PTT) Mode

The PTT key is under the Tecpro logo. A momentary press (less than 1 sec) latches the mic to be either ON or OFF.

Alternatively, if the Tecpro key is pressed down and held, the mic circuit will open for the duration of the key press and is muted again when the key is released. Please see Figure 12.



	Means that the PTT mode is enabled - and the microphone of your headset is open.
	Means that the PTT mode is enabled - and the microphone of your headset is closed.

Figure 12 - PTT Icon

3.4 Quick Channel Setting - 'Fast Channel'

If several Tecpro Wireless conference groups are used on the same site by using different radio channels, then it is possible – providing the encryption process is disabled, please see section 5.0 – to use the Fast Channel feature to switch from one radio channel to another. This may be the case, for example, if a team leader or director needs to move from one conference group to another within a venue.

N.B.

- (i) This feature can only be used on CE channels - not Non-CE channels.
- (ii) Do not assign the ID 01 to a belt-pack that will then subsequently change radio channels, as this will disrupt communication between the remaining members of that conference group. Each conference group must retain a belt-pack on ID 01 to enable continuous group communication. Please see figure 13.

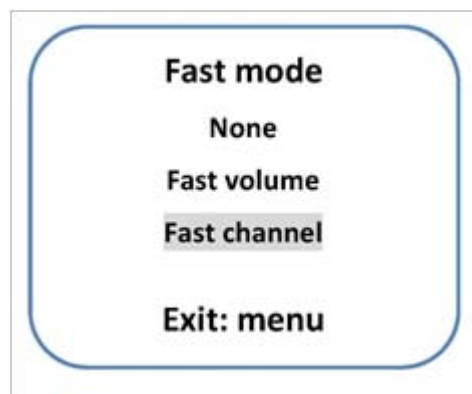



Figure 13 - Fast Channel Adjustment

Procedure:


From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub-menu 'Fast Mode'.

Press OK to confirm.

Press the + or - keys to select 'Fast Channel'. Please see Figure 12.

Press OK to confirm.

Press  to return to the main screen.

3.5 Using Fast Channel Mode

The use of Fast Channel can now be done directly via the + or - keys.

Procedure:

A short press of less than 1 sec - on the + or - keys will allow direct access to the channel choice. Then select CE 01, Ce 02 or CE 03 using the + or - keys.

Press OK to confirm.

N.B. It is only possible to activate one fast mode at a time. Fast Channel mode cannot be activated at the same time as the Fast Volume mode.

To stop the Fast Channel mode, go back to the dedicated Fast Mode menu and choose the option 'None'.

3.6 Quick Volume Setting - 'Fast Volume'

Normally, access to the volume control is done by unlocking the keypad (see section 2.3) and then pressing the + or - keys.

The Fast volume mode overcomes this procedure by allowing immediate access to volume control setting. Please see figure 14

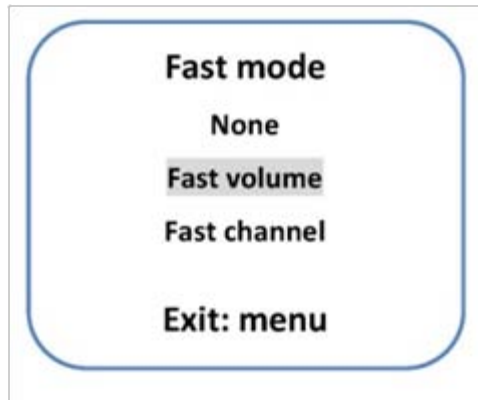



Figure 14 - Fast Volume Adjustment

Procedure:


From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the 'Fast Mode' menu

Press OK to confirm.

In the Fast Mode menu press the + or - keys to select the sub menu 'Fast Volume'.

Press OK to confirm.

Press  to return to the main screen.

3.7 Using Fast Volume Mode

The use of Fast volume is now done by direct access using the + or - keys.

N.B. It is only possible to activate one fast mode at a time. Fast Volume mode cannot be activated at the same time as the Fast Channel mode.

To stop the Fast Volume mode, go back to the dedicated Fast Mode menu and choose the option 'None'.

3.8 Group Selection

The group function allows you to determine which group a belt-pack belongs to.


Up to 8 different groups can be created. Each group has its own rules - listening and or speaking - within the network. Please see figure 15. The function allows a maximum of 6 belt-packs in full-duplex mode per group and an un-limited numbers of belt-packs in listener mode.

N.B. The group function is directly accessible via the keyboard - it does not have to be enabled or disabled via the menu. Please see figure 15.



Figure 15 - Group Selection Screen

Procedure:

From the main screen, momentarily press the menu key  (less than a second) to access the Group Selection screen.

Press the + or - keys to select the required group.

Press OK to confirm.

Gr00	hears and is heard from all groups.
Gr01	hears all groups but is only heard by Gr01 , Gr00 and Gr04
Gr02	hears Gr02 and Gr00 and is only heard by Gr02 , Gr01 and Gr04
Gr03	hears Gr03 and Gr00 and is only heard by Gr03 , Gr00 , Gr01 and Gr04
Gr04	hears all groups and is only heard by Gr04 , Gr00 and Gr01
Gr05	hears Gr05 and Gr00 and is only heard by Gr05 , Gr00 , Gr01 and Gr04
Gr06	hears Gr06 and Gr00 and is only heard by Gr06 , Gr00 , Gr01 and Gr04
Gr07	hears Gr07 and Gr00 and is only heard by Gr07 , Gr00 , Gr01 and Gr04

Figure 16 - Group Table Showing The Available Combinations

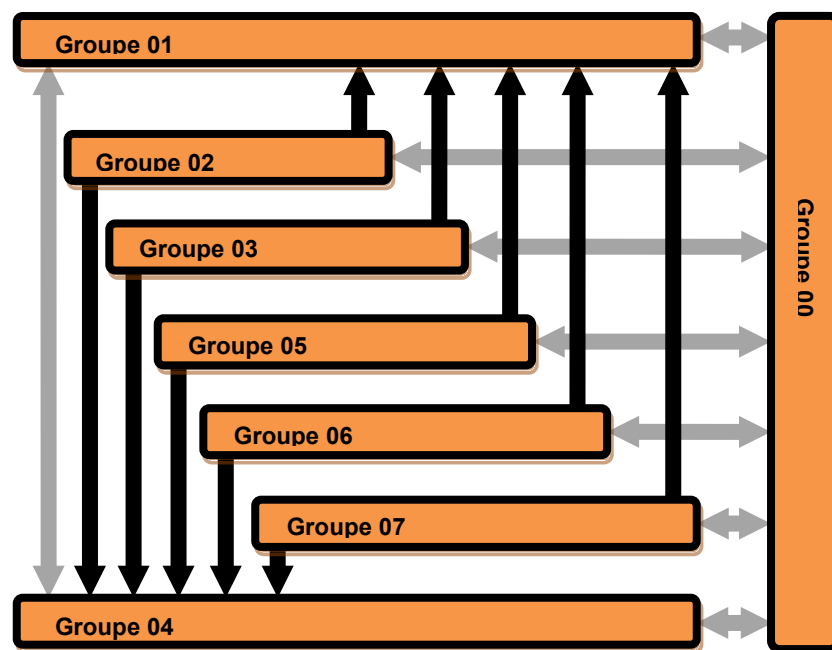


Figure 17 - Schematic Showing Available Combinations

3.9 Example of Group Setting.

Consider a director in overall charge of a stage production that could consist of a lighting crew and a sound crew.

The director would be in Gr00, the lighting crew in Gr02 and the sound crew in Gr03.

In this scenario, group Gr02 and Gr03 can work independently of each other – only communicating with fellow members of their respective groups, without disturbing the other group.

The director has the ability to fully communicate with both groups – but he can also choose to communicate with either Gr02 or Gr03 privately to discuss an operational requirement with the respective group.

To do this he would simply switch his belt-pack to group Gr02 or Gr03.

4.0 ADVANCED SETTINGS

N.B. The following menu would only normally made available to certain types of users - Technical Managers etc. Access to it requires a PIN access code available on request from

Tech Support, Canford Audio Plc. Please be aware that it is possible to prevent the belt-packs communicating if the configuration is set incorrectly.

Tel +44 191 418 1144, Email: techsupport@canford.co.uk

The Advanced Settings menu allows access to the following 4 sub-menus.

- (i) Filter type.
- (ii) User Menu Locked.
- (iii) Encryption mode.
- (iv) Microphone settings.
- (v) AEC Filter

4.1 **Using Advanced Settings.**

Entry of a PIN code is required. Please see Figure 18.

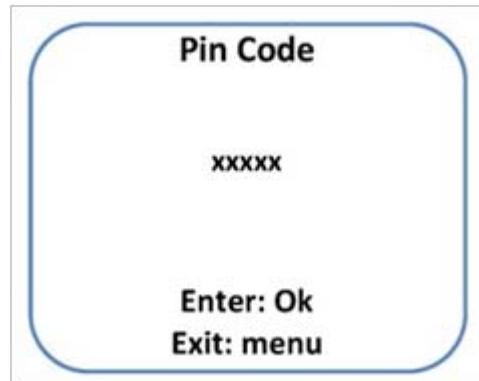



Figure 18 - Entering the PIN Code

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub menu 'Adv Settings'.

Press OK to confirm.

The belt-pack will now prompt you to enter a PIN code.

Enter the value of each digit using the + and - keys. Moving to the next digit is done by briefly pressing the ON/OFF key.

Once the full PIN code has been entered, press OK.

4.2 **Filter Type.**

Depending on the environment and the individual users preference, the filter can be changed.

Please see Figures 19 and 20 for the current choices available.

Filter Type	Applications / Designation
Generic	
Specific	
No Filter	No Filter
Sport w/o (without) mute	
Other w/o mute	
No F w/o mute	No filter; without mute

Figure 19 - Filter Settings Table

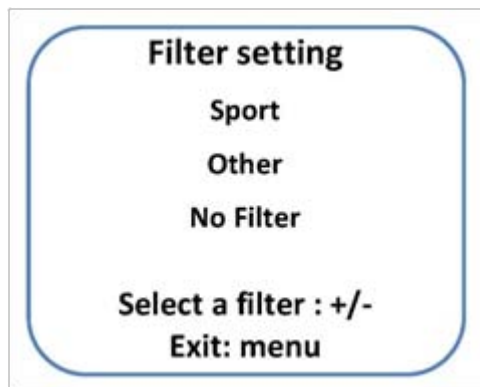



Figure 20 - Filter Settings Screen

Procedure:


From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub menu 'Adv Settings'.

Press OK to confirm.

Press the + and - keys in the sub-menu to select the required filter i.e. 'Generic'.

Press OK to confirm.

Press  to return to the main screen.

4.3 User Menu Locked Feature.

This feature allows you to lock access to the main menu - if you do not want users to change the settings of the belt-packs. Please see figure 21.

N.B. If this feature is enabled, access to the main menu will only be authorised by inserting the PIN code.

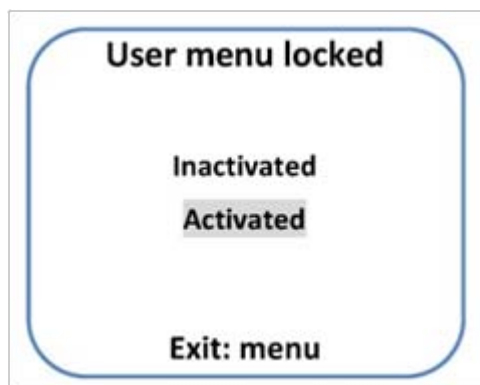



Figure 21 - User Menu Locked Screen

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub menu 'Adv Settings'.


Press OK to confirm.

Press the + and - keys in the sub-menu 'User Menu Locked'.

Press OK to confirm.

Press the + or - keys to select 'Activated'.

Press OK to confirm.

Press  to return to the main screen.

4.4 **Disabling the Encryption Setting.**

In some instances it may be desirable to disable the encryption procedure. For example, when adding new belt-packs into a conference group - but without having to go through the encryption procedure as described in section 2.11.

Typically, this would be where the different belt-packs are located a long distance apart from each other and it's not practical to bring them back together again for encryption and the introduction of additional belt-packs.

If encryption is disabled then simply an available ID needs to be chosen and the same radio channel as the existing conference used. Please see figure 22.

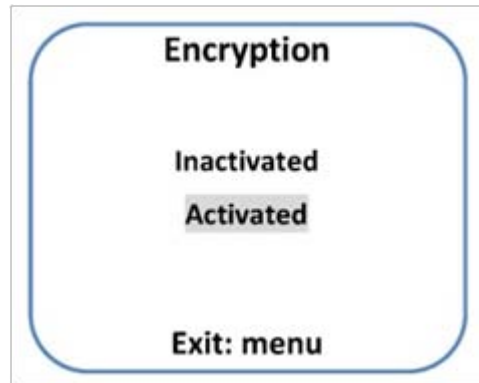



Figure 22 - Encryption Activation Screen

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub menu 'Adv Settings'.


Press OK to confirm.

Press the + and - keys in the sub-menu 'User Encryption Mode'.

Press OK to confirm.

Press the + or - keys to select 'Inactivated'.

Press OK to confirm.

Press  to return to the main screen.

N.B. If the encryption procedure is disabled, you cannot ensure the security or confidentiality of your communications.

4.5 **Microphone Gain Settings.**


The belt-pack has an embedded AGC on the microphone circuit – that allows the use of many types of headsets. However, it is possible to manually set both the DC polarisation and gain of the microphone in manual mode.

Polarisation settings: 0R, 680R, 2.7k, 5.4k

Gain values: 0dB, 12dB, 24dB

Please see figures 23, 24 and 25.

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub menu 'Adv Settings'.

Press OK to confirm.

Press the + and - keys in the sub-menu 'Micro Settings'.


Press OK to confirm.

Press the + or - keys to select 'Manual'.

Press OK to confirm.

Select the required Polarisation value and press OK to confirm.

Select the required Gain value and press OK to confirm.

Press  to return to the main screen.

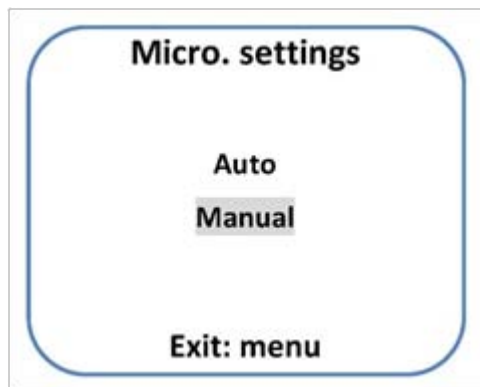


Figure 23 - Micro Settings Screen

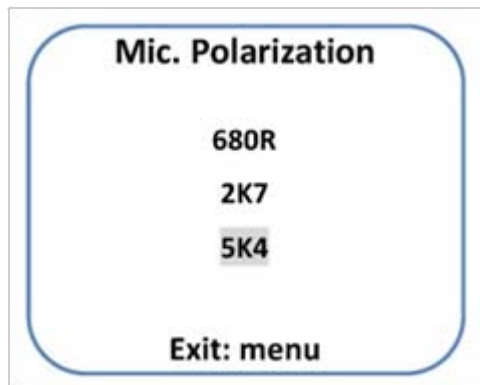


Figure 24 - Mic Polarisation Screen




Figure 25 - Mic Gain Screen

4.6 AEC Filter.

The acoustic echo cancellation or AEC function helps minimise the 'echo' phenomenon associated with the acoustic pickup of an adjacent users mic to be reduced - and so enables the operation of numerous types of headsets and earphones with a microphone to be optimised.

Levels AEC OFF, AEC 1, AEC 2 and AEC 3 are available.

Procedure:

From the main screen, press and hold the menu key  for 2 seconds to access the user menu.

Press the + or - keys to access the sub menu 'Adv Settings'.

Press OK to confirm.

Press the + and - keys in the sub-menu 'AEC'.


Press OK to confirm.

Press the + or - keys to set the desired level of AEC.

Press OK to confirm.

Select the required Polarisation value and press OK to confirm.

Select the required Gain value and press OK to confirm.

Press  to return to the main screen.

5.0 HEADSETS

There are two closed type headsets available. Simply plug the required headset into the belt-pack and orientate the boom mic close to the mouth to talk. There is a MIC CUT switch on the ear-cup to turn the mic off if required.

N.B. When plugging the headset connector in, please ensure the red dot on the barrel of the connector is pointing directly to the rear of the belt-pack.

5.1 Tecpro SMH214

This is a single muff headset Canford product code 27-214 that is ready terminated with a Fischer 102 Series 7-pin plug. The headset incorporates a MIC CUT toggle switch on the outside of the ear-cup.

5.2 Tecpro DMH224

This is a double muff headset Canford product code 27-224 that is ready terminated with a Fischer 102 Series 7-pin plug. The headset incorporates a MIC CUT toggle switch on the outside of the ear-cup.

6.0 BATTERIES AND CHARGER

6.1 Batteries

The batteries are Lithium Polymer VARTA EasyPack 3.7V 2600mAh re-chargeable types.

You can re-charge the batteries before they are fully discharged. The batteries are fully re-charged in about 5 hours.

Battery autonomy is about 16 hours. (Average consumption is 200mA – peak consumption is 600mA).

N.B. When a belt-pack is stored unused, the batteries keep discharging due to a very small current consumption in the OFF mode. Remove the battery from the belt-pack when you stop using it – and check the battery level before re-using.

Only use VARTA EasyPack 3.7V 2600mAh batteries. Use of another battery or charger may present a risk of fire, explosion, leakage, or other hazard.

After use, the batteries should be disposed of in an appropriate recycling centre. They should not be disposed of into the environment.

Do not short-circuit the contacts.

Do not open the batteries.

Do not expose the batteries to temperatures above 100°C.

6.2 Charger

The charger is used for re-charging the batteries of the Canford Tecpro TW401 wireless belt-pack system. Each charger can simultaneously re-charge up to 3 batteries. This charger must only be used with VARTA EasyPack Lithium-Polymer, 3.7V re-chargeable batteries.

If the charger is used with any other battery, it could cause that battery to explode.

This charger has been designed for indoor use. The surrounding temperature when re-charging should be between 5°C and 45°C. If the temperature is not within this range, re-charging is suspended until the correct temperature has been reached.

Don't use any other power supply for the charger than the external AC/DC converter unit provided with the product.

Place the charger on any flat surface.

6.3 Battery Charger Operation

Connect the power supply unit to the socket found on the side of the case. Connect the power supply unit to a mains supply. When plugged in, the 3 status LEDs at the front of the charger will first turn AMBER, then they will turn off one after another and finally simultaneously flash GREEN.

Place the batteries in the charger (gold contact side down). When the battery has been detected, the corresponding LED turns RED. If the LED does not turn RED, please check that the battery has been correctly positioned (gold contact side down at the back of the compartment).

Charging duration is approximately 5 hours for a 2600 mAh battery. Once the battery is fully charged, the corresponding LED turns GREEN.

N.B. A battery can be left in the charger - even after it has been completely charged.

6.4 LED Indicators

Steady RED	Charging.
Steady GREEN	Battery charged.
Flashing RED	Battery defect, charge has stopped, replace the battery.
Flashing GREEN	No battery installed.
Flashing GREEN and RED alternating	Battery temperature is outside the authorised range, charging is suspended until the correct temperature has been reached.
Flashing ORANGE	Unrecognised battery, check the battery type.

6.5 Battery Charger Specification

AC/DC power unit electrical supply	100 - 240V AC ~ 1.5A 50 to 60Hz
Operating Temperature	5°C to 45 °C
Charge duration	5 hours (2600 mAh battery)
Battery lifetime	> 500 charge cycles

7.0 TROUBLESHOOTING

Below is a list of typical problems that may occur:

7.1 Cannot Communicate With Other Belt-Packs

Check all belt-packs are using the same radio channel number.

Check that one belt-pack is identified with the number 01 and that a conference group has been created. N.B. Do not assign the same identifier number to several belt-packs.

7.2 The Belt-Pack Cannot Enter A Conference

Check all belt-packs are using the same radio channel number.

Make sure all the belt-packs have been encrypted to enter the conference - especially if an extra belt-pack has been added to an existing conference.

7.3 The Belt-Pack Will Not Switch On

Check that the battery is charged and correctly inserted the right way round.

7.4 Communication Interference

Another conference system may be in use close to yours. Use the primary CE 01 radio channel - or switch to the alternative channels CE 02 or CE 03.

Make sure there is no contact between the belt-pack antenna and the headset cable

7.5 Crackling Noises

The microphone of one of the belt-packs is probably damaged. Replace the headset or re- terminate the connector.

7.6 Echo Sounds

Check there is at least 10m between the belt-packs to prevent your voice being picked up on another headset boom mic.

7.7 The Keys Are Not Working Properly

Press the keys in the centre. Some functions require a key to be pressed and held for 3 seconds. Avoid pressing more than one key simultaneously.

8.0 ACCESSORIES

27-401	Tecpro TW401 wireless belt-pack
27-403	Tecpro TW403 wireless interface
27-405	Tecpro TW405 Battery charger 5-way
27-406	Tecpro TW406 Lightweight earpiece with boom mic
27-407	Tecpro TW407 Lightweight earpiece with boom mic and on/off switch
27-214	Tecpro SMH214 Single muff headset
27-224	Tecpro DMH224 Dual muff headset
27-408	Tecpro Spare 2600mAh rechargeable battery
27-409	Tecpro Spare belt clip for TW401
27-415	Tecpro TW415 Battery charger, 3 way, complete with power supply
27-416	Tecpro TW416 Battery charger, 3 way extension unit for TW415
27-417	Tecpro TW417 Battery charger, spare power supply for TW415

(Additional accessories will be made available - as they are developed)

9.0 TECHNICAL SPECIFICATIONS

9.1 **27-401 TW401 Wireless Belt-pack**

Harmonised Standards	Radio EN300-220 EMC EN301-489
Frequencies	CE01 869.525 MHz, CE02 864.500 MHz, CE03 863.500 MHz
Modulation	GFSK
Data rate	115 kbits/sec "air-rate"
RF Power	200mW erp maximum - depending on channel selected
Useable distance	300 to 400m maximum - depending on the environment
Duty Cycle	< 10%
Conference Group	Up to 6 personnel
Listen Only	Unlimited number of listeners
Protection Class	IP54 rated
Dimensions	60(w) X 22(d) X 120(h)mm
Weight	180g

9.2 **27-214 SMH214 Single muff closed headset**

Impedance	35 ohm
Microphone	Electret mic (2-10V DC)

9.3 **27-224 DMH224 Dual muff closed headset**

Impedance	2 X 35 ohm
Microphone	Electret mic (2-10V DC)